

#### ABSTRACT OF THE DISCLOSURE

A method for manufacturing a glass preform includes supplying a first gaseous or vapor phase composition to a reaction chamber; supplying water as a second gaseous or vapor phase composition to the reaction chamber; reacting the water and the first gaseous or vapor phase composition to form an aerosol of glass particles; directing the aerosol along the reaction chamber, out of the reaction chamber, and toward a target; and depositing glass particles of the aerosol onto the target. The first gaseous or vapor phase composition is disposed to provide a hydrolyzable glass precursor. Walls of the reaction chamber have a temperature gradient in which a temperature of the walls increases in a direction of flow of the aerosol along the reaction chamber. Alternatively, a flow of the aerosol along the reaction chamber has a temperature gradient in which a temperature of the aerosol increases in the direction of flow.

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